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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,797	04/10/2001	Zhongning Liang	NL 000195	1904

7590 01/16/2003  
Corporate Patent Counsel  
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EXAMINER

LEWIS, MONICA

ART UNIT PAPER NUMBER

2822

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/829,797

Applicant(s)

LIANG ET AL.

Examiner

Monica Lewis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to the request for continued examination filed December 20, 2002.

#### ***Drawings***

2. The drawings are objected to because of the following: a) it is not clear from the drawings how Figure 2 and Figure 3 depict a cross sectional view of Figure 1; and b) 4 is supposed to be an intermetal dielectrics layer however from the drawing it is not clear that it is a layer (See Figure 3). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as obvious over Saran et al. (EP 0875934A2) in view of Moslehi (U.S. Patent No. 6,016,000).

In regards to claim 1, Saran discloses the following:

a) a bond pad (12) disposed above at least one layered structure (20, 21, and 22).  
(See Figure 1);

b) layered structure comprises a metal layer and a layer of dielectric material (See Figure 1 and Column 4 Lines 33-36); and

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c) via lines are present in the layer of dielectric material (See Figure 2 and Abstract).

In regards to claim 1, Saran fails to disclose the following:

e) via lines are connected to the metal layer to form isolated areas filled with the dielectric material.

However, Moslehi discloses vias connected to metal layers (See Figure 15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Saran to include vias connected to metal layers as disclosed in Moslehi because it aids in providing an electrical connection among various components.

Additionally, since Saran and Moslehi are both from the same field of endeavor, the purpose disclosed by Moslehi would have been recognized in the pertinent art of Saran.

In regards to claim 3, Saran discloses the following:

a) a stack of layered structures is present (See Figure 1).

In regards to claim 4, Saran discloses the following:

a) the metal layer in each layered structure is a metal plate (See Column 4 Lines 33-36).

In regards to claim 5, Saran discloses the following:

a) the top and bottom metal layers of the stack are metal plates and the intermediate metal layer or layers are parallel metal lines (See Figure 2 and Column 4 Lines 33-36).

In regards to claim 6, Saran discloses the following:

a) the metal lines are patterned in the form of a grid (See Column 4 Lines 37-39).

In regards to claim 7, Saran discloses the following:

a) the via lines are patterned in the form of a grid (See Column 4 Lines 37-39).

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5. Claim 2 is rejected under 35 U.S.C. 103(a) as obvious over Saran et al. (EP 0875934A2) in view of Moslehi (U.S. Patent No. 6,016,000) and Zavracky et al. (U.S. Patent No. 5,976,953).

In regards to claim 2, Saran fails to disclose the following:

a) the via lines are lines of tungsten.

However, Zavracky et al. ("Zavracky") discloses vias composed of tungsten (See Column 14 Lines 60-62). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Saran to include vias composed of tungsten as disclosed in Zavracky because it aids in providing an interconnection among the metal lines.

Additionally, since Saran and Zavracky are both from the same field of endeavor, the purpose disclosed by Zavracky would have been recognized in the pertinent art of Saran.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 703-305-3743.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML

January 10, 2003

  
**AMIR ZARABIAN**  
**EXAMINER**  
**SUPERVISOR**  
**TECHNICAL**